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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/387,894 09/01/99 GUHA

A 20721/04404

024024 IM52/0514  
CALFEE HALTER & GRISWOLD, LLP  
800 SUPERIOR AVENUE  
SUITE 1400  
CLEVELAND OH 44114

EXAMINER

COY.N

ART UNIT

PAPER NUMBER

1742

DATE MAILED:

05/14/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Case Number	Ctry	Sub Case	Action Due	Due Date
2072104404	US		RESP DEADLINE	14-Aug-2001
			1ST EXTENSION	14-Sep-2001
			2ND EXTENSION	14-Oct-2001
			FINAL EXT	14-Nov-2001

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Type:

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C.J.L. I.P. DEPT.  
MAY 21 2001  
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Verified \_\_\_\_\_

**Office Action Summary**

Application No.

09/387,894

Applicant(s)

GUHA ET AL

Examiner

Nicole Coy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 December 2000.
- 2a) ☐ This action is **FINAL**.      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. § 119**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

**Attachment(s)**

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.

- 18) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-6 and 8-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Harkness et al., "Beryllium-Copper and Other Beryllium-Containing Alloys", ASM Metals Handbook, Vol. 2.

Harkness et al. anticipates the invention as claimed. Harkness et al. discloses several Ni-Be alloys. One example contains 2 % Be, 0.5 % C and balance Ni and another contains 1.85 – 2.05 % Be, 0.4-0.6 % Ti and balance Ni (pg 423, Table 13). Harkness et al. further discloses that the beryllium nickel casting alloys are used as tools (Pg 423, Col. 1).

In this instant application, the examiner finds that the taught alloy would inherently possess the ability to contact molten metal at elevated temperatures due to the elevated temperature strength (Fig. 19).

With respect to claim 2, Harkness et al. discloses that many of the casting alloys are used in molds (pg 423, Col. 1).

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With respect to claims 3 and 5, Harkness et al. discloses thermal conductivity of from 28-51.1 W/m K (Pg 426, Table 17).

With respect to claim 4, Harkness et al. discloses that the Ni-Be alloy can be unaged (pg 426, Table 17).

With respect to claim 6, Harkness et al. discloses a hardness of the Ni-Be alloy being 90 % or less of its peak aged hardness (Pg. 424, Fig. 17).

With respect to claim 8, Harkness et al. discloses alloys containing C and Ti (Pg 423, Table 13). Furthermore, Harkness et al. discloses that the alloys can contain varying amounts of chromium, molybdenum, aluminum, cobalt and titanium (Pg 426, Col. 1).

With respect to claim 9, Harkness et al. discloses 2.0 wt % Be (Pg 423, Table 13).

With respect to claim 10, since the amount of Be in Harkness et al. is 2.0 wt %, the examiner finds that the taught alloy would inherently possess an amount of Be being sufficient so that a continuous coating of beryllium oxide forms on the surfaces of the tool but not so great that the alloy become brittle.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Harkness et al., "Beryllium-Copper and Other Beryllium-Containing Alloys", ASM Metals Handbook, Vol. 2.

Harkness et al. discloses the invention substantially as claimed (see paragraph 2 above).

However, Harkness et al. does not disclose a Ni-Be alloy where the hardness is 75 % or less of its peak aged hardness. According to Fig. 17, Harkness discloses a hardness of about 80 % of the peak aged hardness.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to find an optimum hardness, since it has been held that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Aller*, 105 USPQ 233.

5. Claims 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harkness et al., "Beryllium-Copper and Other Beryllium-Containing Alloys", ASM Metals Handbook, Vol. 2.

Harkness et al. discloses the invention substantially as claimed (See paragraph 2 above).

However, Harkness et al. does not teach the type of molten metal which can be used in the disclosed mold.

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It is well known in the prior art that aluminum, magnesium, copper, zinc and their respective alloys are poured in molten form into a die and then allowed to solidify.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the mold of Harkness et al. for solidification of aluminum, magnesium, copper, zinc, and respective alloys due to the high thermal conductivity and elevated temperature strength of the Harkness et al. Be-Ni alloy.

With respect to claim 12, Harkness et al. discloses 2.0 wt % Be (Pg 423, Table 13).

With respect to claim 13, Harkness et al. does not disclose the alloy having been underaged so that the hardness of the alloy is less than 90 % of the hardness of a peak aged alloy of the same composition. However, Harkness et al. does disclose an alloy which has been unaged and also teaches an alloy having a hardness of less than 90 % of the peak aged hardness.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to find an optimum underaged hardness, since it has been held that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Aller*, 105 USPQ 233.

With respect to claim 14, Harkness et al. discloses 2.0 wt % Be (Pg 423, Table 13).

### ***Conclusion***

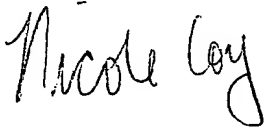
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6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Japanese Patent No. 8-260082 teaches a Ni-Be alloy containing 1.8 – 2.0 wt % Be, 0.3 – 1.0 wt % Ti and balance Ni.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nicole Coy whose telephone number is (703)308-3860. The examiner can normally be reached on Monday-Friday 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (703)308-1146. The fax phone numbers for the organization where this application or proceeding is assigned are (703)305-3599 for regular communications and (703)305-7719 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0651.



nac  
May 10, 2001



ROY KING  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700